IN THE CLAIMS

1. (currently amended) A radio station connectable by wire to a first wire network ~~operable to include~~ including a first plurality of pieces of communication terminal equipment connected by wire and connectable by radio to a second wire network ~~operable to include~~ including a second plurality of pieces of communication terminal equipment connected by wire and adapted for transmitting and receiving a plurality of communication data packets, the radio station comprising:

identification packet generating means for generating an identification packet having a predetermined form;

wireless communication means for transmitting and receiving the plurality of communication data packets between the wireless communication means and the second wire network;

wire communication means for transmitting and receiving the plurality of communication data packets between the wire communication means and the first wire network;

identification packet detecting means for detecting the identification packet generated by the identification packet generating means; and

control means for controlling the identification packet generating means to generate the identification packet and for controlling the identification packet detecting means to detect the identification packet,

wherein the identification packet includes a wire destination address portion indicating a destination, a wire transmit source address portion indicating a wire transmit source of the identification data packet, and a wireless transmit source address portion indicating a wireless transmit source of the identification data packet, and

wherein each of the wire destination address portion, the wire transmit source address portion, and the wireless

transmit source address portion of the identification packet indicates the radio station.

2. (previously presented) The radio station as set forth in claim 1, wherein the control means changes a communication mode in the wireless communication means when the identification packet is detected by the identification packet detecting means.

3. (previously presented) The radio station as set forth in claim 2, further comprising selector means for selecting a wireless communication channel for transmitting and receiving the plurality of communication data packets from a plurality of wireless communication channels,

wherein the control means selects a wireless communication channel at the selector means to change the communication mode.

4. (previously presented) The radio station as set forth in claim 2, further comprising ciphering means for enciphering each of the plurality of communication data packets transmitted and received by radio between the ciphering means and the second wire network based on a cipher key,

wherein the control means changes the cipher key at the ciphering means to change the communication mode.

5. (previously presented) The radio station as set forth in claim 1, wherein each of the plurality of communication data packets includes a wire destination address portion indicating one piece of communication terminal equipment of the first and the second pluralities of pieces of communication terminal equipment serving as a destination of the communication data packet and a wire transmit source address portion

indicating one piece of communication terminal equipment of the first and second pluralities of pieces of communication terminal equipment serving as a transmit source of the communication data packet.

6. (canceled)

7. (previously presented) The radio station as set forth in claim 1, further comprising wireless address adding means for adding a respective wireless destination address portion indicating a destination when transmitting and receiving operations are performed by radio and a respective wireless transmit source address portion indicating a transmit source when the transmitting and the receiving operations are performed by radio to each of the plurality of communication data packets sent from the wireless communication means to the second wire network.

8. (previously presented) The radio station as set forth in claim 7, wherein the wireless destination address portion of the identification packet includes broadcast addresses in which each of the plurality of pieces of communication terminal equipment connected to the radio station and each of the plurality of pieces of communication terminal equipment connected to the wire network are the destination.

9. (previously presented) A data packet transmitting and receiving method of transmitting and receiving a plurality of communication data packets by radio between a first radio station connected to a first wire network including a first plurality of pieces of communication terminal equipment connected by wire and a second radio station connected to a second wire network including a second plurality of

communication terminal equipment connected by wire, the method comprising the steps of:

generating an identification packet, the generation performed by the first radio station and the identification packet having a predetermined form;

transmitting the identification packet generated in the identification packet generation step to one of the first wire network and the second radio station, the transmission performed by the first radio station;

determining whether a communication data packet received from one of the second radio station or the first wire network is the identification packet, the determination performed by the first radio station; and

changing a communication mode between the first radio station and the second radio station when the communication data packet is the identification packet,

wherein the identification packet includes a wire destination address portion indicating a destination, a wire transmit source address portion indicating a wire transmit source of the identification data packet, and a wireless transmit source address portion indicating a wireless transmit source of the identification data packet, and

wherein each of the wire destination address portion, the wire transmit source address portion, and the wireless transmit source address portion of the identification packet indicates the first radio station.

10. (previously presented) The data packet transmitting and receiving method as set forth in claim 9, further comprising the step of selecting a wireless communication channel for transmission of the communication data packet from a plurality of wireless communication channels to

change the communication mode based on the wireless communication channel selected in the selection step.

11. (previously presented) The data packet transmitting and receiving method as set forth in claim 9, further comprising the step of enciphering the communication data packet based on a cipher key to change the communication mode based on the cipher key used in the ciphering step.

12. (canceled)

13. (canceled)

14. (canceled)

15. (canceled)

16. (currently amended) A wireless network system of transmitting and receiving a plurality of communication data packets between a first radio station connected to a first wire network including a first plurality of pieces of communication terminal equipment connected by wire and a second radio station connected to a second wire network including a second plurality of pieces of communication terminal equipment connected by wire, wherein one or both of the first radio station and/or the second radio station comprises: identification packet generating means for generating an identification packet that is a communication data packet having a predetermined signal form; and identification packet detecting means for detecting the identification packet from the plurality of communication data packets; wherein the identification packet includes a wire destination address portion indicating a destination, a wire transmit source address portion indicating a wire transmit

source of the identification data packet, and a wireless transmit source address portion indicating a wireless transmit source of the identification data packet; and wherein each of the wire destination address portion, the wire transmit source address portion, and the wireless transmit source address portion of the identification packet indicates ~~one of the first radio station or the second radio station~~ the first radio station if the identification packet generating means of the first radio station generates the identification packet or indicates the second radio station if the identification packet generating means of the second radio station generates the identification packet.

17. (previously presented) The wireless network system as set forth in claim 16, wherein a communication mode between the first radio station and the second radio station is changed based on a detection result of the identification packet detecting means.

18. (currently amended) A wireless network apparatus for performing transmission of a plurality of communication data packets between a first wire network and a second wire network by radio, the wireless network apparatus comprising:

loop detection packet generating means for generating a loop detection packet of a predetermined form used for detecting a loop of one or more of the communication data packets; and

detecting means for detecting the loop detection packet from a plurality of received communication data packets,

wherein the loop detection packet includes a wire destination address portion indicating a destination, a wire transmit source address portion indicating a wire transmit source of the identification data packet, and a wireless

transmit source address portion indicating a wireless transmit source of the identification data packet, and

wherein each of the wire destination address portion, the wire transmit source address portion, and the wireless transmit source address portion of the ~~identification~~ loop detection packet indicates the same address.

19. (previously presented) The wireless network apparatus as set forth in claim 18, wherein a communication mode is changed based on a detection result of the detecting means.